

ABSTRACT OF THE DISCLOSURE

The present invention is directed to a method and computer program product for offloading specific processing tasks that would otherwise be performed in a computer system's processor and memory, to a peripheral device, or devices, that are connected to the computer. The computing task is then performed by the peripheral, thereby saving computer system resources for other computing tasks and increasing the overall computing efficiency of the computer system. In one preferred embodiment, the disclosed method is utilized in a layered network model, wherein computing tasks that are typically performed in network applications are instead offloaded to the network interface card (NIC) peripheral. An application executing on the computer system first queries the processing, or task offload capabilities of the NIC, and then selectively enables those capabilities that may be subsequently needed by the application. The specific processing capabilities of a NIC are made available by creating a task offload buffer data structure, which contains data indicative of the processing capabilities of the corresponding NIC. Once an application has discerned the capabilities of a particular NIC, it will selectively utilize any of the enabled task offload capabilities of the NIC by appending packet extension data to the network data packet that is forwarded to the NIC. The device driver of the NIC will review the data contained in the packet extension, and then cause the NIC to perform the specified operating task(s). This offloading of computing tasks on a per-packet basis allows an application to selectively offload tasks on a dynamic, as-needed basis. As such, applications executing on the computer system processor are able to offload tasks in instances where it is busy processing other computing tasks and processor overhead is high. Multiple tasks can also be offloaded in batches to a particular peripheral.

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